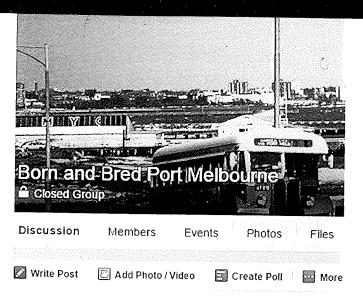
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## Digital Heritage

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Visitor, Contributor and Conversationalist: multiple digital identities of the heritage citizen

Hannah Lewi, Wally Smith, Andrew Murray and Steven Cooke

#### Abstract

In this paper we analyse modes of connecting to and interacting with heritage through a range of selected digital applications and social media that all relate to the history of places. With their emphasis on connectivity and online participation, these apps and sites seek to create both repositories and digital communities through which images, information, memories and experiences can be shared. Through comparison to the rise of 'citizen science', we propose a new way of categorising these recent mobile and web-based sites that scrutinises, in a more fine-grained way, the mode of citizen engagement that was inscribed into their designs and purpose. The simple typology of curated sites, content-hosting sites, and social network sites, provides a way to examine the possibilities and the limits for a kind of digitally-enabled 'heritage citizen'. We ask questions around how digital and social media open up new forms of consumption and production of heritage related interpretation and content, and we tease apart issues of ownership and citizen versus institutional presence, moderation and control, and ongoing engagement.

#### Parallels between citizen science and heritage

There is a rapidly growing array of digital tools that promise to enhance people's experience of heritage places, including history tour apps, web-based archives of photographs and oral histories, and Facebook nostalgia groups. While many of these tools draw heavily on traditional forms of interpretation, such as signage, the guided tour and the guide-book (Lewi & Smith 2011), they nevertheless bring new modes of finding out about places, visiting them, and exchanging information, thoughts, memories and experiences. Many commentators argue that collectively these technologies bring significant new possibilities, not just for enhanced visitor experiences but also for new digitally-enabled forms of heritage practice (Giaccardi & Palen 2008). A digital overlay of information, for example, provides a way to juxtapose the extant with the virtual and intangible (Pink, 2012), at the same time providing a responsive and adaptive medium to capture and circulate memories and records in the face of disruptions brought by urban renewal (Hayden 1995).

A particular area of interest is around new possibilities for the public to become co-producers of heritage, and with this altered relationships between experts and visitors. For some commentators a radical shift in heritage practices heralded by digital technology is self-evidently taking place through the very nature of social media that allow users to create, post and share content (Staiff 2014); and this view might seem to be confirmed through a recent resurgence in grass-roots and 'bottom-up histories' (Dicks 2000; Robertson 2012; Schofield 2014). In response to such general claims, our aim in this article is to look critically at the rich variety of

digital tools that are emerging, and to consider the various ways public involvement is being enacted with and through them, and what significance this might hold for heritage practice.

Our point of focus is to examine the range of digital tools for historic places that have appeared in recent years, and to identify the kinds of activities they promote. As van Dijck (2007: 2) has suggested, digital media does not constitute a 'passive go-between' that simply disseminates content and dialogue, but like any organising structure, it mediates and thereby 'intrinsically shapes the way we build up and retain a sense of individuality and community, or identity and history'. Our aim, then, is to ask what new kinds of heritage community, identity and history, if any, are being assembled around the use of new digital tools?

One way to frame these questions is to consider whether these new forms of participation constitute something deserving to be called 'citizen heritage'. By citizen heritage, we draw an analogy with the notion of 'citizen science', a mode of science that mobilises a non-expert public into collaboration with expert scientists and which has been facilitated by digital tools for distributed data collection and analysis. Citizen science is typified by environmental science projects in which geographically dispersed members of the public collect data from the wild, such as sightings of rare species, all collated electronically by a central team of scientists. Numerous successful projects have become possible through this digital collaboration between experts and citizens (Bonney et al. 2014). Are we witnessing the beginnings of a parallel citizen heritage, in which citizen-generated content, such as posted images, memories and comments, will systematically contribute to heritage evidence and knowledge?

To consider what can be gained from this analogy, we will first briefly consider debates around the meaning and motivations of citizen science. Alan Irwin, a sociologist widely credited as the originator of the term, envisioned a 'science' which addresses the 'needs and concerns of citizens', and also one that is 'developed and enacted' by citizens themselves (Irwin 2002: xi). Irwin's vision was intended partly as a corrective to creeping public disenchantment with late twentieth century science, and we might see his new figure of the citizen scientist as reclaiming some of the comfort of the nineteenth century amateur scientist who had been banished by the intervening institutionalisation of science.

Many successful projects have subsequently identified themselves as doing citizen science, but typically with a less radical vision and a more humble role for the citizen. For example, Rick Bonney, an early promoter and leader of citizen science projects in the area of ornithology, sketched three models of practice: 'contributory', with the citizen as an assistant collecting field data, 'collaborative', where scientists define the framework of questions and method, while citizens provide not just data but input to method and analysis; and, 'co-created', in which scientists and citizens define and shape the project together, and thus the citizen is involved throughout the scientific process (Bonney et al. 2009). Relative to Irwin's vision, the three models of practice by Bonney et al. exhibit a clear asymmetry between the scientist as an authority and the public citizen as a helper who aspires to equality but never to be in control.

Sociological studies of citizen science projects in action reveal more nuanced and sometimes problematic relationships between citizens and scientists. For example, Cornwell and Campbell (2011) studied a project to conserve sea turtle populations on the North Carolina coast carried out as a collaboration between citizens; in this case it was local volunteers and coordinators who carried out nest relocations and other protective actions on the beaches, and state scientists who monitored and collated the data centrally. Citizen and scientist motivations were always quite distinct and could come into conflict; such as when the local volunteers and coordinators wanted to move any nest in danger, while the state scientists wanted minimal intervention so as to maintain the relevance of the study to natural environments. In this case, the citizens sought a closer relationship between themselves and turtles, while the scientists took a distant statistical view of turtle populations, one that separated humans from nature. According to Cornwell and Campbell (2011: 116), although the citizens did not consider themselves 'epistemic equals' to the scientists, they were not subservient data collectors and exercised power for their own agenda through a greater knowledge of the material realities of working with turtles and the beach environment. The citizens in this case study valued

the distant scientific knowledge but often only insofar as it could be used in advocacy for wildlife protection in policy arenas. And where the citizens disagreed with the directives of the scientists, they exploited uncertainty in scientific theories to press their own views on how turtles were to be protected.

Unlike Irwin's vision and Bonney's models for the citizen as various kinds of helper, Cornwell and Campbell's (2011) account reveals a picture of citizens and scientists working in parallel with different agendas brought temporarily and often uneasily together. This echoes longstanding debates around incommensurability between the 'certified' expertise of scientists and the 'experience-based' expertise of other parties; one famous example being the conflicting perspectives of government radiation scientists and sheep-farmers in Cumbria in the north of England during the response to Chernobyl fall-out in the 1980s (Collins & Evans 2002: 237-238).

A recurring question within debates about the nature and value of citizen science is whether citizens learn about science and the scientific process by participating in such projects. Procitizen science researchers Brossard et al. (2005: 1099) conducted a survey of participants in 'The Birdhouse Network' project in which volunteers put up nest boxes in their garden and conducted detailed observations of nesting behaviours, clutch sizes and so on. While participants showed measurable improvements in their knowledge of bird biology, no change was detected in either attitude or knowledge of the scientific process. Other researchers, including Cornwell and Campbell (2011), argue that the aim of educating the public in the scientific method is misconceived. Rather than thinking of volunteers as being in need of greater education about science, Cornell and Campbell argue that these citizens had a valid but different way of knowing about the phenomena of concern.

Our aim is to take the notion of citizen science, with its successes but also its challenges, as a reference point to consider the possibilities for citizen heritage. The present focus on digital tools reflects the fact that they typically underpin the delivery of successful citizen science projects. As a social theorist of technology Michel Callon (1991: 143) has pointed out, scientific practices are 'inscribed' in the tools that they deploy. In the following, we ask what practices are inscribed in the new digital tools for historic places? What is the nature of citizen engagement that is being facilitated? What is the implied relationship between heritage expert and the public, and what is the identity of the new heritage citizen being created?

## Three categories of place-based digital tools for citizen heritage

To explore these questions, we carried out a survey of sites and apps that reveal the history of places in 2014 and 2015 to examine the various ways in which a form of citizen heritage might be taking shape. It is no longer possible to catalogue systematically the large volume of relevant apps, websites and other tools emerging around the world, but rather our aim was to sample selectively prominent developments for closer scrutiny around the potentials for local community and citizen-generated heritage interpretation. The two main criteria for inclusion were that the tool should be about the history of *place*, as opposed to other kinds of history, and that it should gather user-generated content in some form. There are of course many significant applications for the heritage of places that do not conform to our criteria, for example the *Streetmuseum* App from the Museum of London that does not accept user-generated content.

Our central observation, around which our analysis here is based, was that the tools could be readily divided into three groups according to the mode of citizen engagement that was inscribed into their designs. The remainder of this article will describe, illustrate and reflect on these three categories which we label as *curated sites*, *content-hosting sites*, and *social network sites* (Figure 1). Each new technology is, of course, distinct and fits our scheme only so well, and part of our analysis is to point out these idiosyncrasies. Also, there are significant technologies that do not meet our criteria and do not fit these categories. But equally, we hope to show, through our illustration and analysis of key examples, that these three simple categories provide a way to examine the possibilities and limits for citizen heritage.

#### Content-hosting sites Curated sites Social networks sites & the visitor & the contributor & the conversationalist Institutional sites that allow Historic content posting sites Place-based social network sites comments and feedback (e.g., Historypin) (e.g., Facebook pages and (e.g., Adelaidia, National Trust tour) groups) high low

curatorial presence

Figure 1. 'Three groups of digital sites that host public exchange on heritage' Source: authors.

#### Curated sites and the visitor

The first and most visible group of digital apps and sites for the history of places are those with an explicit host or guide, acting as convenor and online curator of a heritage discourse. These include government, and institution-hosted sites, and dedicated historic tour guide apps. Like a traditional institution, they define themselves through identifying with a particular place and/or historic themes, and for this they offer authoritative curated materials and commentary. Here the user is cast very much as a *visitor* to a museum or a heritage site. As with a museum or heritage site, these digital tools typically allow public feedback in the form of social media style comments and 'likes' associated with specific 'exhibits', and sometimes through posting items of content within clearly specified, but relatively narrow, terms. Three prominent examples will serve to illustrate this group.

Adelaidia began in 2014 and was created in partnership by History SA, the South Australian Government and Adelaide City Council (see Figure 2). The app delivers authoritative information and artefacts provided by History SA on the history of Adelaide, including events, people and street histories. There is also a provision for users to contribute memories and images, although these exist as incidental features rather than being the organising principle of the app.

Melbourne's Lost 100 app was launched in 2012 by the National Trust of Australia (Victoria), highlighting one hundred buildings located in the Melbourne central business district that had been demolished or were at risk. This provides an example of a tour app, a common type in this group, in this case inviting users to tour and visit the sites of lost buildings. The primary organising principle of the app is to present authoritative content under the institutional custodianship of the National Trust. However, again, it includes significant features to allow the public to add content including their stories relating to particular buildings, or to overlay a historical image of the now-demolished building using augmented reality.

The format of *Melbourne's Lost 100* and *Adelaidia* marks a clear boundary between expert voices and those of the public. Han et al. (2014) built and investigated a similar smartphone app tour of the historic buildings of an American college campus which mixed 'official features', meaning expert commentary on each building, with 'social features', meaning public comments. Capturing a common outcome for these tour apps, the findings of Han et al. illustrate the strange gulf that opens between the anonymous, objective and authoritative voice of the expert, and the comments of users that are typically highly subjective, self-referential, and often playfully childish in style.

The City of Memory site, which was functional from 2003 until 2008, was a website that located stories and memories about New York onto a map. Created by City Lore, a New York cultural heritage not-for-profit organisation, it was funded by the Rockefeller Foundation. The

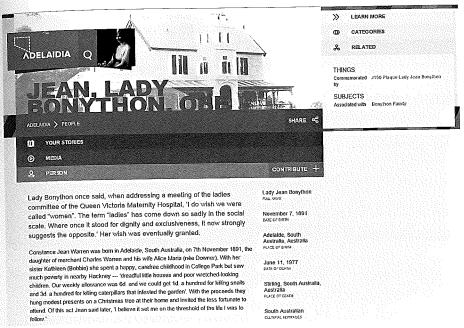


Figure 2. 'Adelaidia, an example of a site where the institution is the host' Source" https://www.adelaidia.com.au

site was populated with content generated from City Lore's archive and related heritage work, with users invited to contribute as well. City of Memory fits this first category through its strong reliance on curated content and a named curator, City Lore. However, it also shares similarities with the next category of Content-hosting sites through its primary organising principle being content posted on a map of New York, and the facility for citizens to make their own postings. Despite this central affordance of user-generated content, City of Memory opted for a clear demarcation between official 'Stories curated by City Lore' coded as orange icons on the map, and publicly-generated 'Stories uploaded by users' coded as blue icons. The app therefore retained a clear divide between expert and citizen input.

## Content-hosting sites and the contributor

Our second group consists of technologies which are also purposely built for the documentation and interpretation of heritage but which provide a more 'open framework' for community exchange. Although intrinsically related to heritage content, many are created by tech-companies operating outside of the traditional heritage arena. Rather than providing a body of curated and navigable content, the central organising principle in these content-hosting sites is an empty database waiting to be 'populated' with public material. Content-hosting sites explore, through technical innovation and social media capabilities, the ability for communities and users to make contributions and give reactions. The user is now cast as a *contributor* of content, typically posted to a map with a template of fields that allow certain configurations of text and images. Despite this spatial device, there is typically far less commitment to a particular place or themes, and therefore relatively little curatorial presence. Four examples will serve as illustration.

Historypin was launched in 2010 as a joint venture between the not-for-profit company Shift, and Google (see Figure 3). It is a map-based app and website, which allows anyone to contribute content, images, video, audio, stories, and pin it to the map, thereby creating a global network of stories. Apart from special projects conducted by Historypin, for most of the world map there is typically no official narrative or content to provide a framing context around the user-generated content.

What Was There was launched in 2011 and was conceived by Enlighten, a digital marketing agency. It is a-map-based desktop only site, which allows users to upload images to the map, and also overlay them in Google Street view.

SepiaTown was started in 2010 as an independent venture, and is a map-based, desktop-only site which allows users to contribute historic images and pin them to a map.

*Timera* is an app and website created in 2013 by a tech start-up in Russia, and uses photographic comparisons, allowing users to upload existing photos and create insitu 'then and now' photographs, with the ability to comment and discuss them using social media functions.

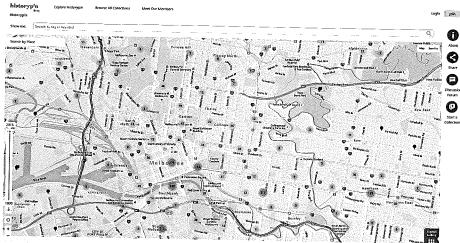


Figure 3. 'Historypin, an example of an open-framework site' Source: https://www.historypin.com

## Social network sites and the conversationalist

Our third category of digital heritage tools is the use of social network sites, principally Facebook groups, as a forum for discussion about the heritage of a particular place. Although these can be set up by institutions, here we refer to groups that are set up by members of the public acting independently. Within these Facebook groups, or a similar site supporting everyday social life, the user is cast now as a *conversationalist*, someone keen to join an ongoing flow of digital comments and information exchange around a topic that happens to be about the heritage of a particular place. These have appeared all over the world, with the following being three Australian examples:

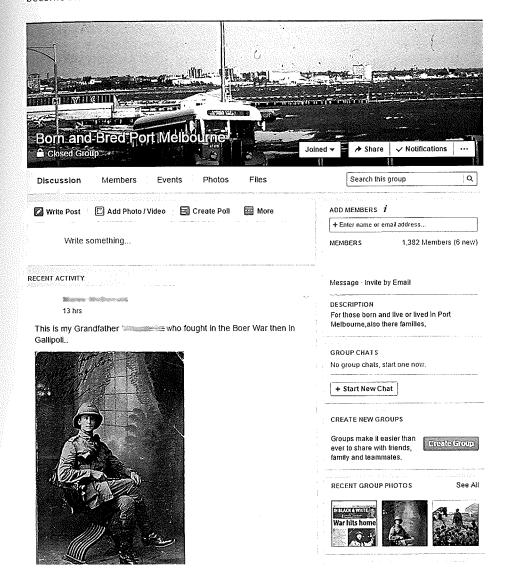
Born and Bred Port Melbourne (BBPM), a page dedicated to sharing memories and ephemera about living in Port Melbourne (see Figure 4);

Northcote Hysterical Society (NHS) that collects historic images of Northcote, another suburb of Melbourne;

Lost Perth (LP) that focuses conversation and exchange around the demolished buildings chiefly in the CBD of Perth.

The organising principle of these social network sites is typically a network of members forming a grass-roots community and their ongoing digital conversation, including the sharing of memories, historic photographs, and often nostalgic comparisons of yesterday and today, sometimes with reactions to planning and building developments (Gregory 2015). Typically there is no official authoritative voice to frame content, but there is often a curatorial lead provided by a founding member or emergent leaders of the conversation. However, these insider-curators perform a highly improvised and idiosyncratic form of curation, in the sense that there is typically no standard framework or guide as to the kinds of content acceptable to be posted other than the constraints of the Facebook platform itself. The representation of

heritage being collected and commented upon is diffuse and often highly personalised and localised. Therefore within our three categories, this group of technologies represents the grass-roots extreme in which the citizen proceeds with a much fainter curatorial presence, and the technological medium itself is now so commonplace to its users that it has almost become invisible.



**Figure 4.** 'Born and Bred Port Melbourne, an example of a Facebook heritage page' Source: https://www.facebook.com/groups/pamelajudd/

#### Attributes of citizen heritage tools

From one viewpoint, this wave of digital tools can be seen as homogeneous. They share a common aim to host a digital exchange of various kinds of knowledge, memory and experience of a shared heritage, and they offer many possibilities in common, for example they can all be used on smartphones to guide the exploration of places, and many allow the curation of map-based walking tours. Despite this apparent homogeneity, our three categories suggest how the tools act in quite different ways when we consider the user activities inscribed and the associated possibilities for citizen heritage.

First consider the curated sites typically hosted by institutions, such as *Adelaidia* and *Melbourne's Lost 100*. As noted by Cameron and Kenderdine (2007), these public institutions have long attempted to move away from an assumed voice of authority that speaks to an un-informed public, and have pursued alternative strategies to embrace and value public and other sources of knowledge. Their digital interactive technologies, with features for public commentary, might be cited as a clear example of this. From the perspective of the present analysis, however, these curated sites still present the clearest presence of authoritative heritage expertise that is distinct from public knowledge. In this way, they most closely resemble citizen science projects as they exist in practice, marked by a strong asymmetry between expert and public knowledge. Typically, they correspond to Bonney et al.'s (2009), notion of a 'contributory' role for the citizen, the weakest sense of citizen science, in which the public help by collecting or providing data as specified by the institution's curated scheme.

One way in which this asymmetry is expressed is that the apps and sites linked with institutions and custodians are more vigilant in moderating public contributions of content and user responses, thus creating an obvious gate-keeper and custodian role, and a potential barrier to open participation. All the apps we identified that were tied to custodians and institutions enacted up-front moderation policies, usually with a time lag of several days between uploading and posting.

Our second category of content-hosting sites presents a different approach which, in principle, offers something than might approach Irwin's (1995) original vision of citizen science as 'developed and enacted' by citizens themselves. These more open frameworks—including Historypin, What Was There, SepiaTown and Timera—all operate in a similar way with the ability for both individual citizens and larger institutions to contribute content in an ongoing fashion. They appear to offer a hybrid model that is able to sustain localised community-generated content, yet within more globally-applied technology platforms (Lenihan 2014: 208). But importantly, all content is typically presented with equal authority, in that there is no hierarchical identification of 'amateur' or 'official' content.

Engagement at a local Melbourne level in *Historypin*, for example, is promising with at least 500 contributions in the CBD area at the time of our study. Posters cover a diverse cross-section, with content equally uploaded by individuals and institutions, including the National Archives, Yarra Trams, University of Melbourne Archives, The National Trust, Museums Victoria, Monash University Oral History Project 'Australian Generations', and VicRoads. Content includes social history, architectural and landscape images, from past to present.

Unlike the curated sites, but like the models of citizen science proposed by Bonney et al (2009), these content-hosting sites are designed around a standard format and template for the posting of information. This brings the possibility for a cumulative documentation that grows as a durable resource for those interested to explore later. Also, none of the content-hosting sites that we examined have an overt moderation system in place. They instead rely on self-policing based on social media conventions. With all four of the content-hosting examples illustrated here, the user is free to upload whatever material they choose and it is only moderated or reviewed if flagged or reported by a fellow user. Therefore, as could be expected, these corporate-driven initiatives of content-hosting exert less influence over content generation than the cultural institutions and heritage bodies behind the curated sites, thus indicating a more distant sense of ownership over its presentation and circulation.

Our third category, of social network sites that are typically Facebook heritage pages such as NHS and BBPM, in some sense comes closest to Irwin's (2002) vision for citizen science as 'developed and enacted' by citizens. The BBPM site, for example, was started by a community member as a place for present and former residents of Port Melbourne to come together and share stories related to their lives, and to keep track of each other. Unlike the curated sites and the content-hosting sites, the social network sites are often closed and private in nature. In another sense, then, these extreme grass-roots forms of digital exchange are the least like a citizen science project because they lack the equivalent of a scientist in the form of a heritage expert. A second critical point is that neither do they provide a standard format for materials

posted on their sites, except for the minimal constraints of Facebook entries. Instead they host a free flowing river of electronic conversation between a group of citizens with the exchange of materials such as historic images. The resulting sediment of postings, while vibrant and with strong participation, is difficult to penetrate and retain and so typically does not produce a durable and usable resource for later interpretation and exploration of the place of concern.

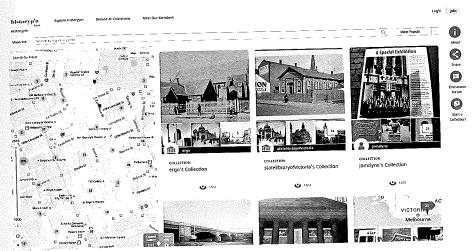


Figure 5. 'Examples of engagement within the Historypin site' Source: https://www.historypin.com

A critical overarching issue about the potential of these tools to support a form of citizen heritage is the longevity of the activities and resources that they create. In discussing community archives, Stevens (2010: 61) notes 'long-term engagement may still depend on the enthusiasm and commitment of a few strategically placed individuals'. These individuals are usually placed within a collecting body, like a local history and heritage society, which ensures their stewardship a more straight-forward responsibility.

Because Historypin is created and run by a not-for-profit company and builds on Google technology, the longevity and sustainability of the project is somewhat secured with a more corporate structure. This application also acts as an umbrella, frequently partnering with or inviting institutions to contribute content. The non-for-profit company promotes continuing engagement by initiating ongoing projects, events such as treasure hunts and tours, and meet ups. While this model has been successful for Historypin, it is an unsustainable business model for many other apps and sites, which have generally had varying success in keeping up interest and engagement—not unlike problems that face material heritage sites. SepiaTown and What Was There (WWT) both experienced a rush of activity on release and generated a lot of activity, but since then interest seems to have slowed. WWT still receives regular updates, but mainly instigated by the creators themselves or a small band of repeat users. SepiaTown appears sadly all but unused. Without ongoing resources to maintain content and participation, these sites tend to collapse. In these situations, what then happens to the afterlife and longevity of any valuable content collected? The more top-down, institutionally led tools like Adelaidia and Lost 100 have more visible support and input from larger bodies, allowing for a continued commitment to resources and stewardship, if they are successful.

In general, sites and apps authored by identifiable institutions and community and government bodies like *Adelaidia*, *Lost 100* and *City of Memory*, rely on promoting user engagement and interaction with content through a social-media 'response'—users only engage by contributing their stories and memories anchored to a particular building or place, as selected by say the National Trust, so the opportunity for participation is narrow. Without access to usage data it appears that in a number of these examples, community engagement has not been sustained, as evidenced by the lack of comments, memories and stories shared to date. In the period of our analysis *Adelaidia* had 7 memories posted since its start in early 2014; and *Lost 100* has

fifty-one 'stories' added since 2012. City of Memory had more success initially, but the project funding ran out in 2008, and so no new content can now be added or interacted with.

In contrast, Facebook heritage and nostalgia pages are more often flourishing, with content flooding community pages, generating vast stores of information. Whilst operating under the Facebook platform, there is a level of autonomy, flexibility and independence within these pages unseen within the other apps and sites. Perhaps due to the perceived lack of boundaries, and the informal, social nature of Facebook groups, the level of activity is significantly higher than the most popular curated sites, or even the content-hosting sites like *Historypin* or *Timera*. However questions arise over their potential in deriving and collecting valuable and more lasting content that could contribute to historical and heritage understandings and experience for the general public into the future.

Therefore, despite claims to a more universally accessible, 'democratic' model for future heritage interpretation based on social media expectations, the success of launching platforms away from traditional custodial institutions, archives and community-run historical societies and so on, towards more open digital repositories, suggests a rethinking of curatorial models and conventions. This perhaps demonstrates the potential rift between community and individual citizen participation and more authorised and curated content, as evidenced in the public's apparent reticence to contribute to the curated sites that we investigated.

## Conclusions—opportunities and issues

It can seem as if social media is radically transforming public engagement in heritage, leading inevitably towards wider and greater participation in both its consumption and production, and bringing with it a new digitally-enabled heritage citizen. Without doubt, these apps and sites can mark and raise awareness of forgotten places and local histories in new ways, and encourage meaningful experiences that mediate between tangible places and digital information and artefacts (Markwell 2004: 458; Han 2014: 1153). However, by identifying and contrasting three different groups of familiar digital tools used for appreciating historic places, we have looked more closely at this transformation and examined the ways they might be facilitating community-based and citizen-generated heritage akin to citizen science. In particular, we have examined the identity of the emerging heritage citizen inscribed in these new technologies. We have described how each of the three identified groups of technologies—curated sites, content-hosting sites, and social network sites—is inscribed with a different identity for its 'heritage citizen', from a visitor, to a contributor and a conversationalist. Although any particular tool might involve a mixture of curation, user-generated content and social media commentary, it typically has a dominant mode of engagement inherent in its design. And although citizens may easily switch modes of engagement over time, for example from an institutional walking tour one day to a Facebook group the next, at any one time they too will be working in one mode or another. What is less apparent in these new technologies, however, is the potential fusing of the three identities, such that, for example, an individual citizen's rich personal memories that might be the stuff of the Facebook conversation are readily captured as a contribution within a structured content-hosting site, such as Historypin, or provided as a response in a comment-box of a curated institutional website. Further, how might this information contribute to more formal heritage processes which attempt to incorporate 'sense of place' as a way of managing change in urban landscapes (Buckley et al. 2016). Although content-hosting, curation and personal recollection are all happening in the digital realm, the tools we have examined suggest that they are not yet readily uniting into a singular practice of citizen heritage interpretation. Or, in other words, what appears to be emerging is that the digital heritage citizen has distinct identities. Therefore, rather than breaking down the divide between institutional heritage authorities and the citizenry, this new generation of digital tools is not so much working across this divide as working on either side of it.

It is clear then that a digitally-enabled citizen heritage faces issues that are similar to those facing the more developed practices of citizen science. As we described at the outset, the democratic visions for citizen science of Irwin (1995) and to some extent Bonney et al. (2009),

and with them the return of the romantic figure of the 19th-century amateur scientist (Busch and Kaspari, 2013), are all challenged in the practical reality of a citizen science project. As seen in the study by Cornwell and Campbell (2011), the divide between expert scientists and citizen participants was not breached, but rather the citizen conservationists simply operated on both sides of the divide. As lovers and protectors of sea-turtles, they independently pursued their goals of protection as they saw best, while crossing over to engage in scientific debates only as a ploy to influence the scientists in line with their goals.

We contend that these challenges are also shared by all cultural and heritage institutions that have a contemporary agenda to be community-relevant and engaging yet operating within institutional and curatorial expectations of some level of authority and control over custody of collections, curation, dissemination and advice (Stevens 2010: 63; Tait 2013: 578). New digital interpretation and history platforms share these divisions, which may indeed be irreconcilable. Digital tools do not side-step questions of institutional and expert authority, presence and direction. The issues at stake accord more broadly with the current anxieties being debated in influential heritage bodies, like UNESCO and ICOMOS, about who owns, maintains and controls heritage information and experience.

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